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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/694,464	10/27/2003	Kenneth A. Stewart	CS23035RL/10-191	2512
51874 7590 08/16/2007 LAW OFFICES OF CHARLES W. BETHARDS, LLP P.O. BOX 1622 COLLEYVILLE, TX 76034			EXAMINER TRAN, KHANH C	
			ART UNIT 2611	PAPER NUMBER
			MAIL DATE 08/16/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

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<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	10/694,464		STEWART ET AL.	
	<b>Examiner</b>		<b>Art Unit</b>	
	Khanh Tran		2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 June 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1 and 3-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 11-18 is/are allowed.
- 6) ☒ Claim(s) 1,3,8-10,19-21 and 26-29 is/are rejected.
- 7) ☒ Claim(s) 4-7 and 22-25 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10/27/2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

1. The Amendment filed on 06/07/2007 has been entered. Claims 1 and 3-29 are pending in this Office action.

### ***Response to Arguments***

2. Applicant's arguments, see Applicant's Remarks, filed on 06/07/2007, with respect to the rejection(s) of claim(s) 1-4, 8-10, 19-22 and 26-29 under 35 U.S.C. 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Li et al. U.S. Patent 6,587,526 B1.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 19-20 and 29 are rejected under 35 U.S.C. 102(e) as being anticipated by Li et al. U.S. Patent 6,587,526 B1.

Regarding claim 1, in column 4 lines 30-65, Li et al. teaches that in FIG. 1 a simplified block diagram form, details of the timing synchronization portion of a wireless system base station including an embodiment of the invention: A received signal from a user mobile station 200 (FIG. 2) is supplied to input terminal 101 and, then, to synchronization signal extraction unit 102.

Unit 102 includes an optimum sampling window, as described above, and extracts the timing synchronization signal in well-known fashion. The extracted signal is down-converted to yield a continuous time down converted and windowed signal. In view of that, the extraction of the synchronization signal is to suppress on channel interference between mobile users; see further in column 2 lines 50-45.

This signal is supplied to delay estimation unit 103. In certain applications the received signal may be modulated by synchronization symbols assigned to the particular user mobile station. In such an instance, it is necessary to remove the synchronization symbols from the received signal. To this end, the assigned symbols for the particular received signal are supplied from synchronization symbol database 104 to delay estimation unit 103 where they are used to remove the synchronization symbols from the received signal, as described below in conjunction with FIG. 3. Delay estimation unit 103 generates a delay parameter estimate.

Regarding claim 19, claim is rejected on the same ground as for claim 1 because of similar scope.

Regarding claim 20, as recited above, Li et al. teaches employing synchronization symbols in the signal and synchronization symbols have known properties.

Regarding claim 29, Li et al. teaches a user mobile receiver as disclosed in FIG.

2.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 3 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Li et al. U.S. Patent 6,587,526 B1 as applied to claim 1 above and further in view of Kirkland U.S. Patent 7,020,226 B1.

Regarding claim 3, Li et al. does not expressly disclose to suppress the on channel interference relies on a known quadrature relationship as set forth in the application claim.

Nevertheless, Li et al. teachings apply to OFDM system. In column 5 lines 35-55, Li et al. discloses the continuous-time and down-converted and windowed signal synchronization signal extraction unit 102 (FIG. 1) is supplied via input terminal 301 to

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Inverse Fast Fourier Transform (IFFT) unit 302. Unit 302 yields a set of complex values 303-1 through 301-N, one for each simultaneously received tone or sinusoid. Kirkland further discusses in another US Patent that the 90 degrees phase relationship is otherwise **known as a quadrature phase relationship**, when used with reference to OFDM signals; see column 8 lines 50-60. As recited above, since Li et al. teachings apply to OFDM system and synchronization signal extraction unit 102 (FIG. 1) is supplied via input terminal 301 to Inverse Fast Fourier Transform (IFFT) unit 302 to generate a set of complex values 303-1 through 301-N, therefore, one of ordinary skill in the art at the time the invention was made would have recognized that the synchronization signal extraction unit 102 can be modified to extract the synchronization symbols based on the known quadrature phase relationship.

Regarding claim 21, claim is rejected on the same ground as for claim 3 because of similar scope.

5. Claims 8-9 and 26-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Li et al. U.S. Patent 6,587,526 B1 as applied to claim 1 above and further in view of Bottomley U.S. Patent 6,363,104 B1.

Regarding claims 8-9 and 26-27, Li et al. does not disclose the teachings applying to GSM, which employs GMSK modulation as claimed in the application claim.

Bottomley discloses in another U.S. Patent **GSM** digital cellular systems in which the delays are provided by **channel delay estimator** 204, which uses known methods to

estimate the delays, such as finding delays which give large despread values; see column 1 lines 20-30 and 30-45. Since estimating channel delays are transparent to digital cellular systems, it would have been obvious for one of ordinary skill in the art at the time the invention was made to modify Li et al. teachings to apply to GSM system.

6. Claims 10 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Li et al. U.S. Patent 6,587,526 B1 as applied to claim 1 above and further in view of Schmidl et al. U.S. Patent 5,732,113.

Regarding claim 10, Li et al does not disclose the predetermined sample comprises a training sequence (TS) as claimed in the application claim.

Because Schmidl et al. discusses employing OFDM training sequence 132 to acquire and synchronize to the OFDM signal (see column 12 lines 25-40), it would have been obvious for one of ordinary skill in the art at the time the invention was made to modify Li et al. teachings to include the synchronization signal in the training sequence as discussed in Schmidl et al. teachings.

Regarding claim 28, claim is rejected on the same ground as for claim 10 because of similar scope.

***Allowable Subject Matter***

7. Claims 4-7 and 22-25 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. Claims 11-18 are allowed.

***Conclusion***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khanh Tran whose telephone number is 571-272-3007. The examiner can normally be reached on Monday - Friday from 08:00 AM - 05:00 PM.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shuwang Liu can be reached on 571-272-3036. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

KCT

  
KHANH C. TRAN  
PRIMARY EXAMINER

08/14/2007  
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